

CLAIMS

What is claimed is:

1. An electric caliper assembly for a brake system comprising:
a first friction element;
a piston for engaging said first friction element;
an actuator for applying an axial load to said piston; and
5 a universal connection between said piston and said actuator for
allowing a swiveling movement of said piston relative to said actuator for evenly
distributing said load to said first friction element to minimize sideloads of said
assembly.
2. An assembly as set forth in claim 1 wherein said universal connection
includes a deformable load distribution device presented between said actuator and
said piston for evenly distributing said load over said piston as said piston swivels to
engage said first friction element.
3. An assembly as set forth in claim 2 wherein said universal connection
includes a spherical surface on said actuator opposing a complimentary spherical
surface on said piston for supporting said load distribution device.

4. An assembly as set forth in claim 3 wherein said load distribution device is incompressible.

5. An assembly as set forth in claim 3 wherein said load distribution device has a thermal resistance for insulating said assembly from a heat gradient generated by said first friction element.

6. An assembly as set forth in claim 3 wherein said load distribution device is a solid elastomer.

7. An assembly as set forth in claim 3 wherein said load distribution device is a flexible container filled with a flowable material.

8. An assembly as set forth in claim 7 wherein said flexible container is a cloth material.

9. An assembly as set forth in claim 7 wherein said flexible container is an elastomer material.

10. An assembly as set forth in claim 7 wherein said flowable material is a liquid having a high specific gravity.

11. An assembly as set forth in claim 7 wherein said flowable material is a plurality of solid particles.

12. An assembly as set forth in claim 3 wherein said actuator includes a circular cap disposed between said actuator and said load distribution device for distributing said load therebetween.

13. An assembly as set forth in claim 12 wherein said piston includes an annular flange axially extending beyond said cap from an outer edge of said piston toward said actuator.

14. An assembly as set forth in claim 13 wherein said cap includes an outer edge for slideably engaging said annular flange for radially piloting said piston as said piston swivels to engage said first friction element.

15. An assembly as set forth in claim 14 wherein said outer edge of said cap is semicircular.

16. An assembly as set forth in claim 13 wherein said cap includes a semicircular annular ring attached to an outer edge of said cap for slideably engaging said annular flange for radially piloting said piston as said piston swivels to engage said first friction element.

17. An assembly as set forth in claim 16 wherein said annular ring has a low coefficient of friction.

18. An assembly as set forth in claim 12 wherein said actuator includes a bearing disposed between said actuator and said cap for rotatably supporting said cap and transmitting said load therebetween.

19. An assembly as set forth in claim 18 wherein said actuator includes a front edge defining an annular channel.

20. An assembly as set forth in claim 19 wherein said bearing is seated in said annular channel.